Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Cytology Test**

Total: / 38

**Part A: Multiple Choice - Circle the response which best completes each statement. (6 pts)**

1. The nucleus \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   1. Helps the cytoplasm do its job.
   2. Controls the cells activities.
   3. Teaches the cell what jobs it has to do.
   4. All of the above.
2. Bacterial cells are prokaryotic; in comparison to a typical eukaryotic cell they would \_\_\_\_\_\_\_\_\_.
   1. Be smaller.
   2. Lack a true nucleus.
   3. Lack a cell membrane.
   4. Have a greater variety of organelles.
3. The chromosomes of eukaryotic cells are located in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   1. Golgi apparatus
   2. Nucleus
   3. Ribosomes
   4. Endoplasmic reticulum
4. A plant cell was grown in a test tube containing radioactive nucleotides, the parts from which DNA is built. Later examination of the cell showed the radioactivity to be concentrated in \_\_\_\_\_\_\_.
   1. Rough ER
   2. Smooth ER
   3. Vacuole
   4. Nucleus
5. Circle the letter of the structure a plant cell would **not** contain.
   1. Cell wall
   2. ER
   3. Centrioles
   4. Chloroplast
6. The term \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ would best describe the orientation of two complementary strands of DNA.
   1. Parallel
   2. Anti-Parallel
   3. Opposites
   4. None of the above
7. Chloroplasts are found in the cells of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   1. Plants only
   2. Plants and some other organisms
   3. All eukaryotes
   4. Most prokaryotes
8. Which of the following is a function of the cytoskeleton?
   1. Manufactures new cell organelles
   2. Assists in movement of some cells from one place to another
   3. Releases energy in cells
   4. Modifies, sorts, and packages proteins
9. Which of the following is not a step in the Cellular Respiration process?
   1. Kreb’s cycle

I

G



A

B

C

D

E

F

H

J

K

L

M

* 1. Glycolysis
  2. Carb’s cycle
  3. Electron Transport

1. Figure 1 is an example of a \_\_\_\_\_\_\_\_.
   1. Plant cell
   2. Animal cell
   3. Protest
   4. Prokaryote
2. Label G in Figure 1 is representing a \_\_\_\_\_\_.

Figure 1

* 1. Vacuole
  2. Lysosome
  3. Chloroplast
  4. Cytoplasm

1. The organelle responsible for creating ATP is represented by label \_\_\_ in Figure 1.
   1. C
   2. D
   3. G
   4. I
2. In Figure 1 the site of lipid formation is labeled with the letter \_\_\_\_\_\_\_\_\_\_\_.
   1. B
   2. C
   3. D
   4. E
3. Centrioles can be recognized because they have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ arrangement of tubulin.
   1. 9 + 0
   2. 9 + 1
   3. 9 + 2
   4. 9 + 3

**Part B: True and False – Indicate whether the statement is correct (using a T) or incorrect (using a F) by writing the appropriate letter in the blank. (5 pts)**

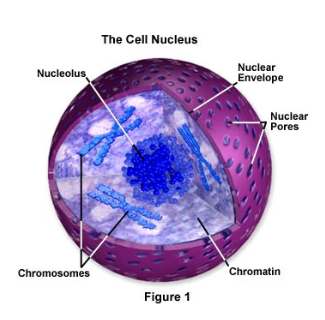
1. Centrioles aide in the division of the nuclear material in all eukaryotic cells.
2. The microtubule arrangement found in centrioles is 9 + 3.
3. Cilia are short cylindrical projections that produce a wave-like motion.
4. The cell wall is responsible for helping the cell maintain its structure.
5. Cellular respiration takes place in the chloroplast.
6. Chlorophyll is the green pigment required in the process of photosynthesis.
7. SER produces lipids.
8. Vacuoles function as storage units for food and water for cells.
9. Ribosomes are responsible for producing protein with the help of the lysosomes.
10. Lysosomes are responsible for recycling and breaking down materials within the cell.

**Part C: Short Response – Answer the following questions in the space provided. (17 pts)**

1. Explain the interdependent relationship between photosynthesis and cellular respiration. Be sure to use the formulas for cellular respiration and photosynthesis to solidify your response. (3 pts)
2. Draw a DNA strand with the base sequence of T – G – A on the left side. Make the top left of the sequence the 5’ end. (5 pts)

1. Spell correctly the terms commonly represented as DNA and ATP. (2 pts)
2. Using complete sentences explain three differences between plant and animal cells. (3 pts)
3. Define 4 of the following 6 terms in relation to their role in cytology. ( 4 pts)
   1. Protein
   2. Double Helix
   3. Organelle
   4. Gene
   5. Uracil
   6. Nucleotide

**Part D: Diagrams – Label the following diagrams in the space provided using the word bank. (10 pts)**

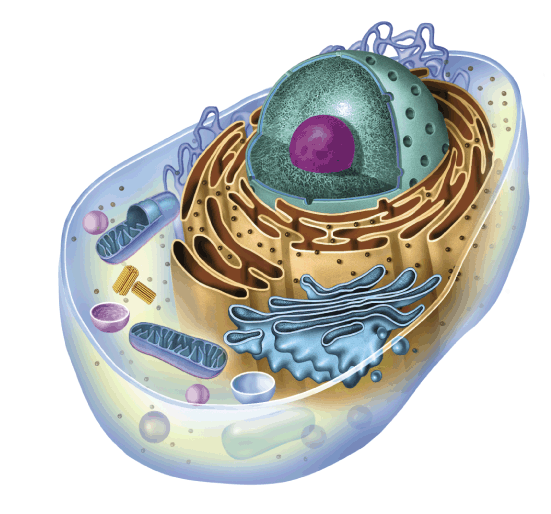


1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7



5

6

8

9

10

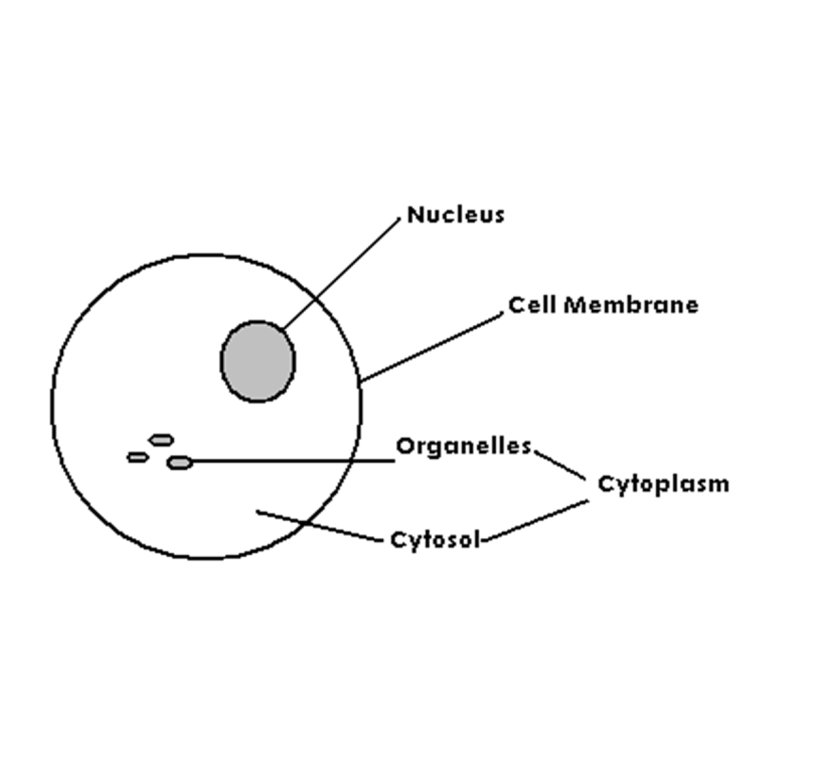
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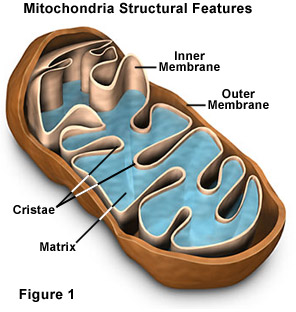
1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

16. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



18. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

20. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Word Bank**

Cell Membrane, Centrioles, Chromatin, Chromosomes, Cytoplasm, Golgi Apparatus, Inner Membrane, Lysosomes, Matrix, Mitochondria, Nuclear Pores, Nuclear Membrane, Nucleolus, Nucleoplasm, Nucleus, Outer Membrane, RER, Ribosomes, SER,